Meeting Wednesday 22.

First we talked about (2,4) cores,

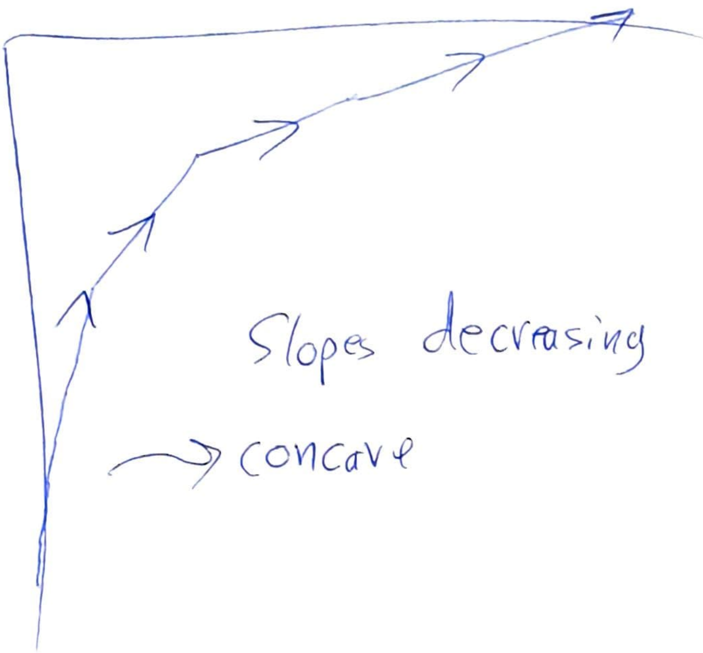
By empirical observation, the generating function for (2,4) cores is $\frac{1}{1-q}$, and we found a description of the (2,4) cores adding a box at a time up to the convention that wand $2(a(\square)+1)+l(\square)=0, \bmod 4$ we added boxes in pattern ....

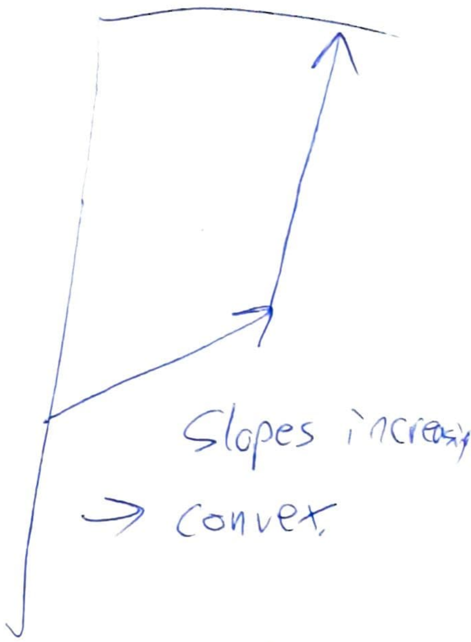
1	3	7	13
2	5	10	
4	8	14	
6	11		
9	15		
12			
16			

We sketched proof that all such partitions actually were (2,4) cores, and it remained to show no other partitions were (2,4) to complete:

Exercise:
$$\sum_{\lambda\ (2,4)\text{-cores}} q^{|\lambda|} = \frac{1}{1-q}$$

Helena made an observation that it appeared (k,n)-cores were all ~~convex~~ concave, in that if we zoomed out the boundary path had different slopes that were decreasing





She noted that the abacus description for usual A-cores (i.e. $(1,n)$-cores) implied this property of decreasing slopes, and wondered if it would hold in general.

I thought it should, and hemmed and hawed about whether I knew how to prove it, and settled on ~~knew~~ saying I did, but ~~was~~ not a great proof, and would ~~be~~ require some tech to write out, and I'd put ~~a~~ messy draft of that tech up someplace.

· Roan had been reading about the "spt" function, that is related to partitions, but counts the number of smallest parts somehow, and satisfies Ramanujan-type congruences

· Dominic was interested in some of the coding projects, and thought he would make a start on the interactive

Dirac Electron Sea $\longleftrightarrow$ Partition

bijection.

As for things to do, I ~~was~~ suggested

1) Read Ashley Warren's thesis, particular part about iterated Dyson Maps

2) Exercises - More coming.

I also said I would share some messy drafts of things...